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REMARKS

Claims 1, 2, and 4-12 are pending in this application. By this Amendment, Applicant AMENDS claims 1, 2 and 4 and ADDS claim 12. Please note that the feature of "the oscillator" was inadvertently omitted from the third to last line of claim 4 in the previous amendment. The feature of "the oscillator" is now correctly recited in claim 4.

The Examiner has indicated that the outstanding Office Action is a Final Office Action (first full paragraph on page 9 of the Office Action). The Examiner is reminded that "[b]efore [a] final rejection is in order[,] a clear issue should be developed between the examiner and applicant." MPEP § 706.07 (emphasis added).

First, the Examiner has raised a new issue by rejecting claim 5 under 35 U.S.C. §103(a) as being unpatentable over Touge et al. because claim 5 was not rejected over any prior art in the previous Office Action, dated July 31, 2002.

Second, the Examiner has failed to address Applicant's argument that Touge et al. fails to teach or suggest an impact dampening mechanism that dampens in **TWO** directions. In the paragraph bridging pages 8 and 9 of the outstanding Office Action, the Examiner has acknowledged that Applicant has made this argument, but the Examiner has failed to specifically address or respond to this argument by pointing out where specifically in Touge et al. that the feature of an impact damping mechanism that dampens in two directions is taught. The Examiner has only recited other features that are allegedly taught by Touge et al.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the Finality of the outstanding Office Action.

Applicant filed an IDS on January 2, 2001. However, the Examiner has never indicated that the IDS was considered. Applicant encloses a copy of the IDS, including the Form PTO-1449 and the prior art reference, previously filed on January 2, 2001. Accordingly, Applicant respectfully requests consideration of the IDS filed on January 2, 2001.

The Examiner has objected to the previous Amendment for allegedly containing

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new matter. The Examiner has alleged that the feature "unitary member" is not supported by the originally filed Disclosure. However, this feature is clearly shown in **Fig. 5** and discussed in the last two full paragraphs on page 16 of the originally filed Specification. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the objection to the previous Amendment based on the incorrect allegation of adding new matter.

Claim 1 was rejected under 35 U.S.C. §112, first paragraph for allegedly containing subject matter that was not described in the specification in such a way as to reasonable convey to one skilled in the relevant art that the inventor, at the time the application was filed, has possession of the claimed invention. As discussed above, the feature of "unitary member" is clearly shown in **Fig. 5** and discussed in the last two full paragraphs on page 16 of the originally filed Specification. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 1 under 35 U.S.C. §112, first paragraph.

Claims 1, 6/1, 7/1, 8/1 and 10/1 were rejected under 35 U.S.C. § 102(e) as being anticipated by Touge et al. (U.S. 6,134,961). Claims 2, 4, 5, 6/2, 6/4, 7/2, 7/4, 8/2, 8/4, 10/2, and 10/4-11/4 were rejected under 35 U.S.C. §103(a) as being unpatentable over Touge et al. Applicant respectfully traverses the rejection of claims 1, 2, and 4-11.

Claim 1 has been amended to recite:

"An angular velocity sensor comprising:  
a substrate;  
an oscillator disposed on the substrate so as to be displaceable  
relative to the substrate; and  
an impact damping mechanism disposed on the substrate for  
dampening the effect on oscillations of the oscillator from an impact to the  
substrate; wherein  
said impact damping mechanism is defined by a single unitary  
member including a portion for damping in a Y-direction and a  
portion for damping in an X-direction which is substantially  
perpendicular to the Y-direction." (emphasis added)

Claim 2 has been amended to recite:

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"An angular velocity sensor comprising:

a substrate;

an impact damping mechanism disposed on the substrate for damping an impact applied to the substrate;

an oscillator supported on the substrate by at least one oscillator support beam, so as to be displaceable in two directions that are substantially parallel to the substrate and substantially orthogonal to each other;

an oscillation-generating mechanism for oscillating the oscillator in an oscillating direction that is substantially parallel to one of the two directions; and

an angular-velocity detecting mechanism for detecting a displacement of the oscillator as an angular velocity when the oscillator is displaced in a detecting direction that is substantially orthogonal to the oscillating direction,

wherein the impact damping mechanism damps an impact to the substrate along at least one direction of the oscillating direction and the detecting direction so as to prevent the impact from being transferred to the oscillator from the substrate;

the impact damping mechanism includes a frame support beam disposed on the substrate and a frame supported on the substrate by the frame support beam so as to be displaceable in at least one of the oscillating direction and the detecting direction, and wherein the oscillator is supported on the inside of the frame via the oscillator support beam such as to be displaceable in both of the oscillating direction and the detecting direction; and

the substrate is provided with a support section arranged outside the frame so as to surround the frame for supporting the frame via the frame support beam and wherein the impact damping mechanism includes a damping clearance portion arranged between the support section and the frame for compressing a gas when the frame is displaced." (emphasis added)

Claim 4 has been amended to recite:

"An angular velocity sensor comprising:

a substrate;

an impact damping mechanism disposed on the substrate for damping an impact applied to the substrate;

an oscillator supported on the substrate by at least one oscillator support beam, so as to be displaceable in two directions that are substantially parallel to the substrate and substantially orthogonal to each other;

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an oscillation-generating mechanism for oscillating the oscillator in an oscillating direction that is substantially parallel to one of the two directions; and

an angular-velocity detecting mechanism for detecting a displacement of the oscillator as an angular velocity when the oscillator is displaced in a detecting direction that is substantially orthogonal to the oscillating direction,

wherein the impact damping mechanism damps an impact to the substrate along at least one direction of the oscillating direction and the detecting direction so as to prevent the impact from being transferred to the oscillator from the substrate;

the impact damping mechanism includes a frame support beam disposed on the substrate and a frame supported on the substrate by the frame support beam so as to be displaceable in at least one of the oscillating direction and the detecting direction, and wherein the oscillator is supported on the inside of the frame via the oscillator support beam so as to be displaceable in both of the oscillating direction and the detecting direction; and

**the oscillator, the oscillator support beam, and the frame have an entire resonant frequency which is set to be about  $1/\sqrt{2}$  times more than or less than a resonant frequency of the oscillator.”** (emphasis added)

Applicant's claim 1 recites the feature of “said impact damping mechanism is defined by a single unitary member including a portion for damping in a Y-direction and a portion for damping in an X-direction which is substantially perpendicular to the Y-direction.” Applicant's claim 2 recited the feature of “the impact damping mechanism includes a damping clearance portion arranged between the support section and the frame for compressing a gas when the frame is displaced.” Applicant's claim 4 recites the feature of “the oscillator, the oscillator support beam, and the frame have an entire resonant frequency which is set to be about  $1/\sqrt{2}$  times more than or less than a resonant frequency of the oscillator.” With the improved features of claims 1, 2, and 4, Applicant has been able to provide an angular velocity sensor capable of damping the impact applied to the oscillator from a substrate so as to prevent the impact from transferring to the oscillator so that detecting sensitivity and detecting accuracies are stabilized while the reliability is improved (see, for example, the last full paragraph on

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page 3 of the Specification).

Applicant agrees with the Examiner that Touge et al. shows an angular velocity sensor. Contrary to the Examiner's allegation, Touge et al. clearly fails to teach or suggest the feature of "said impact damping mechanism is defined by a single unitary member including a portion for damping in a Y-direction and a portion for damping in an X-direction which is perpendicular to the Y-direction" as recited in Applicant's claim 1. Touge et al. teaches the use of an impact dampening mechanism **2a, 2b, 8a, and 8b** which only dampen in one direction, NOT the use of an impact dampening mechanism which dampens in two directions as recited in Applicant's claim. One of ordinary skill in the art would clearly recognize this difference because Touge et al. uses dampening mechanisms **1** and **2** for the y-direction and dampening mechanisms **8a, 8b, 18a, and 18b** in the x-direction in **Fig. 2**.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 1 under 35 U.S.C. §102(e) as being anticipated by Touge et al.

The Examiner has alleged in paragraph bridging pages 5 and 6 of the outstanding Office Action that "[i]t was commonly known to those of ordinary skill in the art to have a damping clearance portion that includes a damping clearance portion arranged between a support frame for the purpose of damping the impact of an oscillating directions and preventing the impact from being transferred to the oscillator to a substrate." However, the Examiner has completely failed to provide any evidence in support of this allegation.

The Examiner is reminded that prior art rejections must be based on evidence. Graham v. John Deere Co., 383 U.S. 117 (1966). The Examiner is hereby requested to cite a reference in support of her position that it was well known at the time of Applicant's invention to use an impact damping mechanism which "includes a damping clearance portion arranged between the support section and the frame for compressing a gas when the frame is displaced" as recited in Applicant's claim 2. If the rejection is based on facts within the personal knowledge of the Examiner, the data should be

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supported as specifically as possible and the rejection must be supported by an affidavit from the Examiner, which would be subject to contradiction or explanation by affidavit of Applicant or other persons. See 37 C.F.R. § 1.104(d)(2).

Accordingly, Applicant respectfully requests the reconsideration and withdrawal of the rejection of claim 2 under 35 U.S.C. §103(a) as being unpatentable over Touge et al.

The Examiner has alleged in the first full paragraph on page 6 of the outstanding Office Action that Touge et al. teaches the features of claim 4. The Examiner states that "the oscillator 11, the oscillator support beam 9a, and the frame 7 have an entire resonant frequency that is set." Applicant is completely bewildered why having "an entire resonant frequency that is set" teaches the feature of "the oscillator, the oscillator support beam, and the frame have an entire resonant frequency which is set to be about 1/ $\sqrt{2}$  times more than or less than a resonant frequency of the oscillator" as recited in Applicant's claim 4. In fact, Touge et al. fails to teach anything at all regarding a specific resonant frequency of the oscillator support beam and the frame and certainly fails to teach or suggest "the oscillator, the oscillator support beam, and the frame have an entire resonant frequency which is set to be about 1/ $\sqrt{2}$  times more than or less than a resonant frequency of the oscillator" as recited in the present claimed invention.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 4 under 35 U.S.C. §103(a) as being unpatentable over Touge et al.

Accordingly, Applicant respectfully submits that Touge et al. and the other prior art of record, applied alone or in combination, fail to teach or suggest the unique combination and arrangement of elements recited in claims 1, 2, and 4 of the present application. Claims 5-12 depend upon claims 1, 2, and 4 and are therefore allowable for at least the reasons that claims 1, 2, and 4 are allowable.

In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt

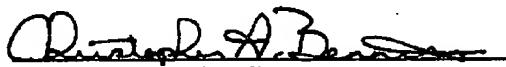
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allowance are solicited.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Date: April 16, 2003

  
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